

CHAPTER 7

ENGINEERING SUPPORT SERVICES

7-1. Types of Services.

a. Studies and Investigations. Districts are involved in special studies and investigations as varied as the imagination of the requestor. Examples are: seismic and structural analyses, building and land utilization studies, economic payback studies for the Energy Conservation Investment Program, various installation utilities systems studies and plans, electrical protective system studies, electric power load studies, corrosion control inspections and surveys, the Energy Engineering Analysis Program (EEAP), materials testing and evaluation, evaluation of insulation values in various facilities, soils and foundation analyses, hydraulics and hydrological studies of aquifers, airfield aircraft parking and hardstand studies, Commercial Activities Studies for certain DEH functions, component inspection for family housing, and scope of work development for any type of project.

b. Dam and Bridge Inspection. A special capability is the evaluation of dams and bridges, regardless of the age of the structure or background regarding its design or construction.

c. Design. USACE districts are known for their mission as the design and construction agent for Military Construction, Army (MCA), Military Construction, Air Force (MCAF), Military Construction, Army Reserve (MCAR), Defense Logistics Agency (DLA) and industrial projects for the installations within their geographic area of responsibility. However, in addition to these programs, Installation Support is also a USACE mission assigned by HQDA (AR 420-10 and AR 10-87). Under the Installation Support Program, districts support the installation engineer in the execution of reimbursable funded programs such as Operations and Maintenance, Nonappropriated Fund, Family Housing, Industrial appropriations, and any other project or requirement that the installation identifies to the district. The district can provide scope development, design, contracting and construction services (partial or all) for these type projects. The district must understand the importance of each installation project, their time and cost sensitivity, and respond quickly to provide the type of service requested. The programming, project initiation process, and design cycle work flow for a reimbursable project varies greatly from that utilized for MILCON projects. A comparison of Reimbursable vs. MILCON procedures is shown on the next three pages in Figure 7-1 through Figure 7-9.

PROJECT DEVELOPMENT FLOW DIAGRAMS FOR ARMY AND AIR FORCE MILCON
AND REIMBURSABLE FUNDED PROJECTS

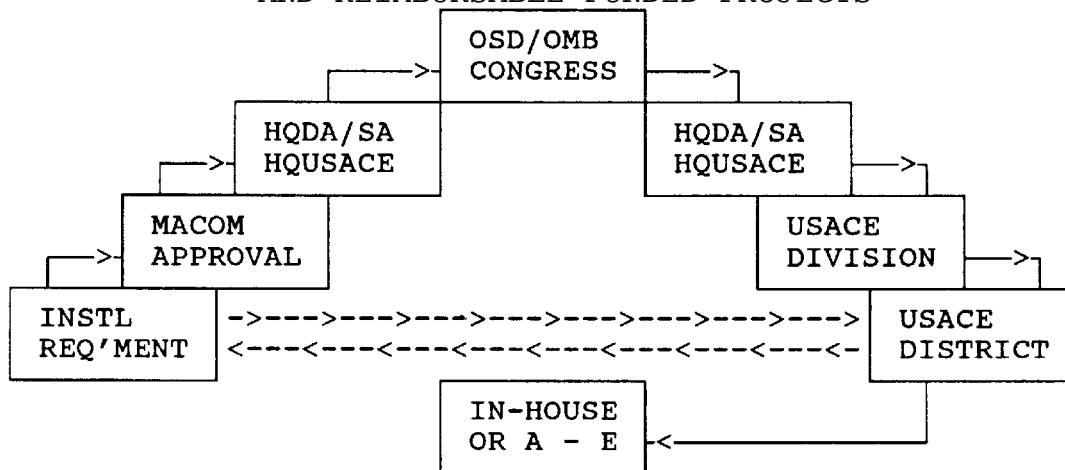


Figure 7-1. U.S. Army MILCON Project Development

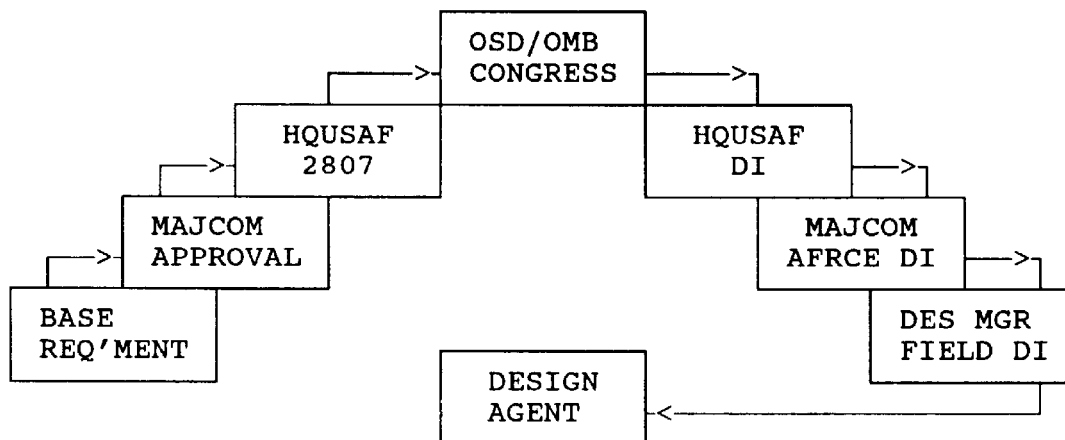


Figure 7-2. U.S. Air Force MILCON Project Development

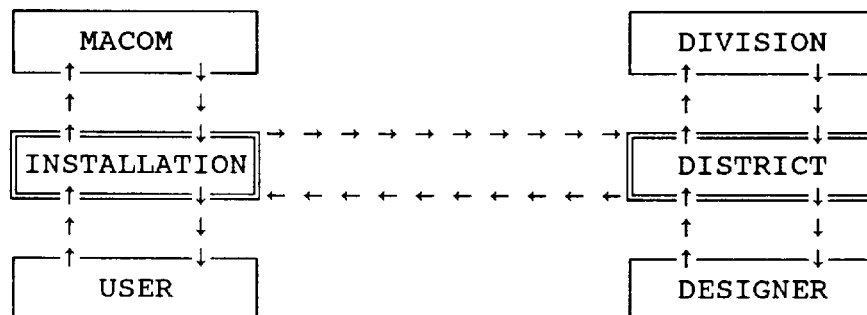
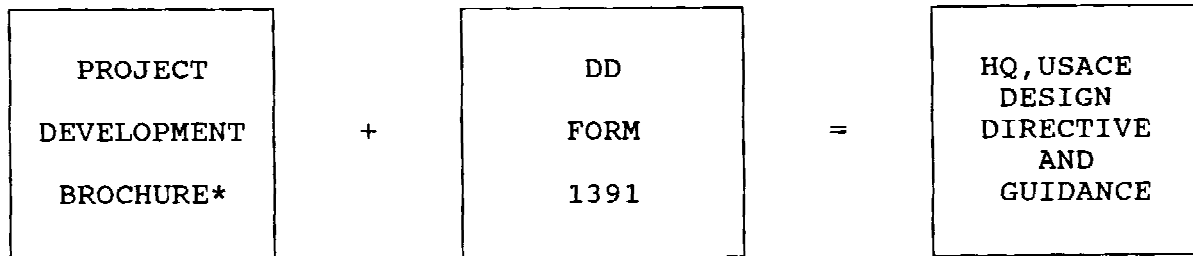


Figure 7-3. Reimbursable Funded Project Development

DESIGN INITIATION DOCUMENTATION FOR ARMY AND AIR FORCE MILCON
AND REIMBURSABLE FUNDED PROJECTS



* OPTIONAL IN SOME MACOM'S

Figure 7-4. U.S. Army MILCON Project Documentation

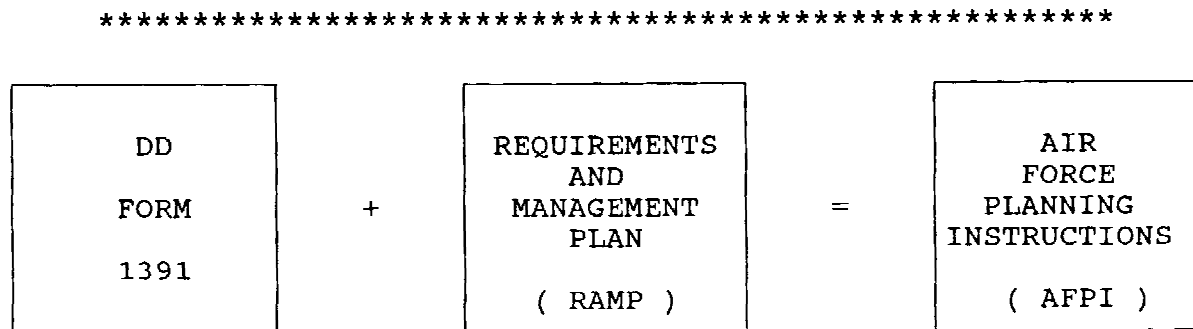


Figure 7-5. U.S. Air Force MILCON Project Documentation

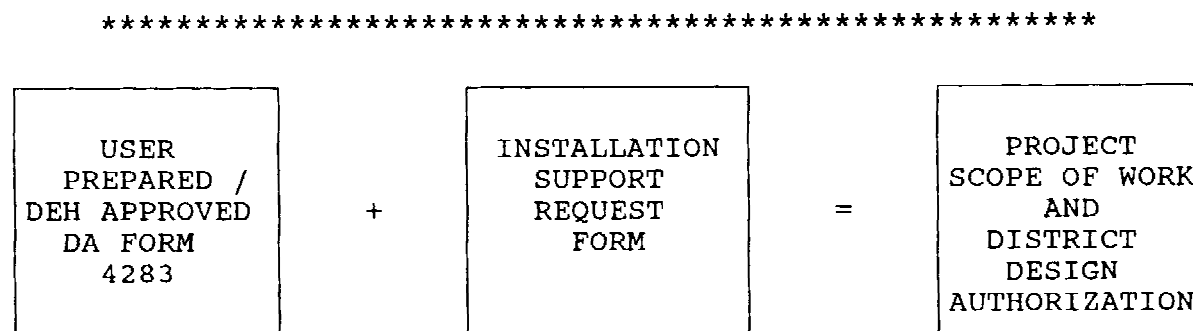


Figure 7-6. Reimbursable Funded Project Documentation

→ → → → AND REIMBURSABLE FUNDED PROJECTS

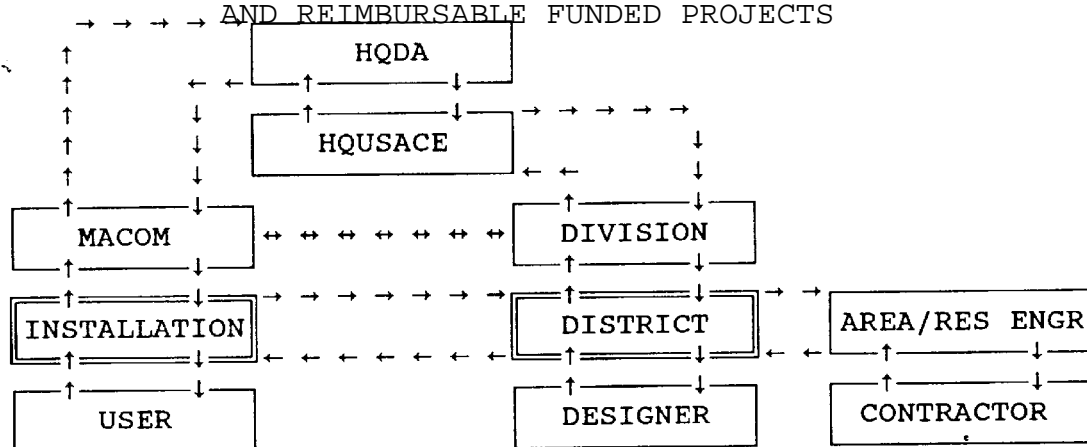


Figure 7-7. Lines of Communication - U.S. Army MILCON Project Design and Construction

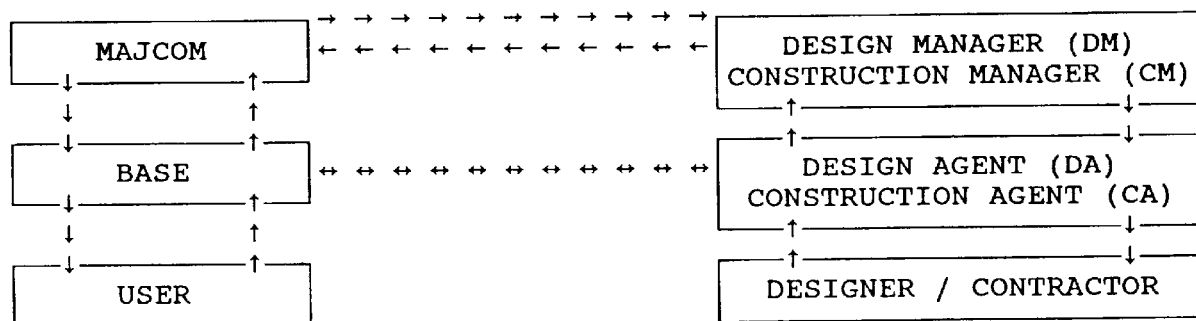


Figure 7-8. Lines of Communication - U.S. Air Force MILCON Project Design and Construction

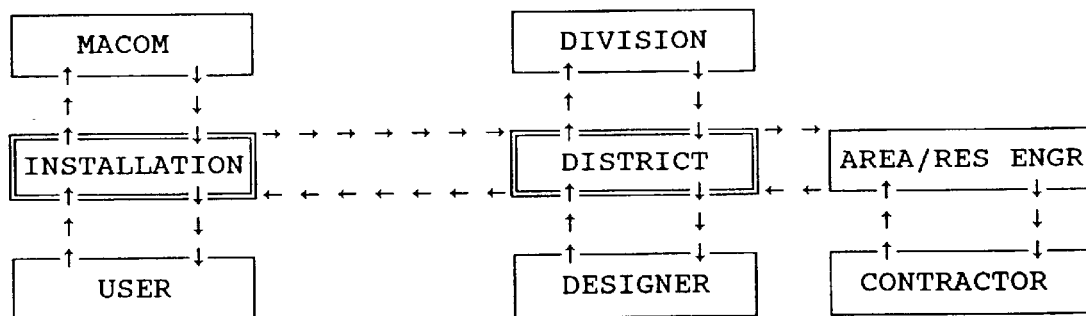


Figure 7-9. Lines of Communication - Reimbursable Funded Project Design and Construction

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d. Reviews. In addition to the reviews normally conducted on work supervised by the district, the district can assist with the review of locally prepared components of the installation master plan/base comprehensive plan and mobilization master plan, annual work plan, land management plan, DD forms 1391, project development brochures and project definition documents, installation-prepared designs, surveys, studies to include value engineering studies, procurement actions relating to utility services, construction contracting documents and construction management activities.

e. Surveying. Districts can accomplish topographical mapping, field engineering, geodetic and plane surveys, profiles and cross sections, and cadastral surveys. Each military construction project normally requires these data to ensure the proper relationship between existing and new construction. Installations can save both time and money by using survey data obtained as part of major construction projects or Operations and Maintenance funded projects.

f. Interior Design Services. A relatively new district service is interior design. This service may be available from the direct support district, or from the center of expertise for interior design at the Omaha District. Interior design is a part of the Army Communities of Excellence Program and the district can provide the installation and its customers with innovative ideas for rehabilitating existing space and planning attractive interiors in new facilities.

g. Cost Engineering. Districts can prepare estimates for construction programming documents, pre-concept control data, various estimates as design proceeds, and current working estimates for construction projects.

h. Specifications. Districts can also prepare construction specifications for major construction projects and for reimbursable funded projects. Techniques such as Simplified Design Methods and Abridged Corps of Engineer Guide Specifications (ACEGS) were recently developed to streamline and reduce the cost for a district to prepare designs for reimbursable funded project.

i. Forensic Engineering. Many installations have one or more facilities suffering from conditions such as progressively cracking walls, abnormal foundation settlement, or expansion and contraction causing roof leaks. Installations should consider analyzing such items to properly fix the problem or avoid them in the design of alteration projects or constructing new facilities.

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j. Value Engineering (VE). Millions of dollars are saved yearly by VE studies that result in alternative construction techniques and state of the art materials. The District has a value engineering staff that performs VE studies of projects and acts as a collection point on new and innovative means of performing construction. Some VE studies are performed by A-E firms. Mandatory VE review of military construction projects of \$2,000,000 and over is a current requirement. This service is available to your installation and should be included early in the design process, particularly if funding problems exist.

k. Technical Criteria. The District has the capability to provide information on technical criteria (commercial, local, federal, DOD, Army, Air Force, professional society/association, etc.) to you and your installation customers. A new compact disk read only-memory (CD-ROM) system for storage and retrieval of technical criteria is now available at the District office, and is also available for subscription by installation design personnel.

7-2. Regulatory and Statutory Guidelines.

An abbreviated list of guidelines applicable to engineering support services is presented as follows:

- a. AR 5-3, Installation Management and Organization.
- b. AR 210-50, Family Housing Management.
- c. AR 415-15, Military Construction, Army (MCA) Program Development.
- d. AR 420-10, Management of Installation Directorates of Engineering and Housing.
- e. DA Pam 210-3, Commander's Handbook for Installation and Activity Consolidations, Realignment, Reductions and Closures.
- f. DA Pam 420-8, Facilities Engineering Management Handbook.
- g. DA Pam 420-9, Installation Commander's Executive Guide to Directorate of Engineering and Housing Operations.

7-3. Who Provides These Services.

For engineering support services, the district Installation Support Coordinator will forward the installations request to either the Technical Engineering Division or to the Project Management Branch of the Engineering/Programs and Project Management Division. In all cases, the Installation Support Coordinator will receive, coordinate and monitor the installation request.

7-4. How To Obtain These Services.

Use an Installation Support Request Form, call or write to the district Installation Support coordinator to initiate a request for service. The installation should be prepared to supply the following:

- a. An Installation Support Request Form. This form gives a narrative summary of work or services required. After the support request is evaluated:
- b. Copies of installation records needed to provide the service.
- c. Applicable documents, correspondence, or regulations.
- d. Document transmitting funds to the district office.

7-5. Typical Funding and Time to Accomplish the Service.

a. The cost and time to accomplish engineering services vary significantly based upon the scope of the request. Therefore, a district is unable to publish fixed cost or timeline data that will accurately apply to each service that an installation could request. However, some typical or average costs (Figure 7-10) and timelines (Figure 7-11 through Figure 7-14) for some of the more traditional activities are presented in the figures that follow. These examples will be beneficial to the installation as guideline, or order of magnitude costs for planning or programming purposes.

LEGEND: ORG = ORGANIZATION EXECUTING THE SERVICE.
 % OF ECC = PERCENTAGE OF ESTIMATED CONSTRUCTION COST.
 D = DISTRICT I = INSTALLATION

NOTES:

1. Construction Management percentage is fixed, others are estimates that may vary from project to project.
2. Engineering/Design percentage typically reduces to 8% when estimated construction cost exceeds \$ 1,000,000.
3. For designs initiated late in the fourth quarter, provide engineering/design cost and one-half of engineering management fee with current year funds. Provide following year funds for the remaining elements.
4. Construction Management percentage includes 8.0% for Supervision & Administration (S&A) and 0.5% Engineering During Construction (EDC). The S&A is 8.5% for OCONUS.
5. Procurement fee includes reproduction cost, solicitation, surveys, evaluation and construction contract award.

Figure 7-10. Typical Reimbursable Project Execution Costs.

Other example cost guidelines for non-design related engineering services are as follows:

TASK OR ITEM OF WORK	APPROX. COST
Establish an Indefinite Delivery A-E Contract.	\$ 5,000
Processing cost per Delivery Order.	\$ 500
Payback analysis for ECIP project.	\$ 5,000
Structural analysis for one floor of permanent building.	\$10,000
Provide drainage requirements for creek.	\$ 5,000
Perform foundation analysis for building site.	\$10,000
Electrical distribution analysis and plan for an installation.	\$100,000

b. Funding for engineering services is normally reimbursable, from the installation to the district, except in the case of design for military construction projects and special programs, e.g., ECIP, Environmental Audit Baselines. If centralized, nonreimbursable program funds are available from HQUSACE, the Installation Support Coordinator will attempt to utilize these where appropriate.

c. Performance time for engineering services is, to a large extent, governed by procurement time. Time to award a contract for A-E services is approximately 120 days, if a DCAA audit is not required. Since the majority of the installation support requests involve reimbursable funded projects, with single year funding, this 120-day selection time could jeopardize successful project completion in a timely manner. Therefore, each district must ensure that adequate indefinite delivery type contracts are on-hand, at the district, to handle potential installation requests. The time to accomplish an engineering study or design after the A-E has been selected can vary from a month or less for a small project to over a year for a complex study or design. Time required for engineering studies, surveys, tests and evaluation is somewhat more flexible, depending on the scope of the requirement.

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In any case, the installation must be assured that the district will initiate action on each request in a timely manner and that any necessary visits from those who will provide the service will occur within ten working days after a request is received at the district.

d. Time Required for Delivery of Engineering Services. Installations should be encouraged to submit requests for design services for Operation and Maintenance or reimbursable funded projects as soon as a firm requirement exists and funds are available. Ideally, design projects requiring year end construction contract award should be submitted to the district by the fourth quarter of the previous fiscal year, or the start of fiscal year when construction contract award is required. However, most districts are, as an exception to policy, able to handle previously unknown requirements on a case by case basis when received later in the fiscal year. Other requests for engineering services, such as studies and investigations, are usually not so time-critical because they have shorter acquisition lead times or do not require follow-on construction contract award at year end.

7-6. Examples of Engineering Support Services.

a. Depicting examples of typical engineering support services could be a boundless task. The type of services requested by installations should be as broad as the imagination of the requestor. Therefore, instead of presenting examples of engineer support requests at the end of this chapter, the processes associated with accomplishing such requests are presented. Knowledge of these processes will assist the installation engineers in their planning efforts and emphasize their role in the process the district takes to complete their requested support action.

b. A guide depicting when the installations should request district engineering support requests, as well as timelines for a typical study, design and the solicitation for construction contract award process, are as follows.

TYPE OF DISTRICT SUPPORT SERVICE	50% OF FFY WORKLOAD			
		75% OF FFY WORKLOAD		
			100% OF CFY WORKLOAD	
DISTRICT DESIGN, PROJECT MGMT, TECH REV & CONSTR CONTR AWD	15 JUN	01 AUG	15 NOV	01 AUG
DISTRICT DESIGN, PROJECT MGMT, TECH REV & INSTL CONSTR CONTR AWD	15 MAY	01 JUL	15 OCT	01 AUG
DISTRICT CONSTR CONTR AWARD OF OFF-THE-SHELF DESIGN OR INSTL PREPARED DESIGN	----	----	01 JUN	----
STUDY / REPORT	SEE	NOTE	#5	
CFY = CURRENT FISCAL YEAR FFY = FOLLOWING FISCAL YEAR				
<u>NOTES:</u> 1. APPLICABLE TO TYPICAL ACQUISITIONS, NOT A SECTION (8A) AWARD, COST CONTRACT, NEGOTIATED PROCUREMENT, REQUEST FOR PROPOSAL OR OCONUS HOST NATION ACQUISITION. 2. ASSUMES COORDINATED, FUNDED AND APPROVED PROJECTS ARE FURNISHED TO THE DISTRICT BY THE ABOVE TARGET DATES. 3. ASSUMES USE OF EXISTING INDEFINITE DELIVERY CONTRACT FOR DESIGN AWARDS AND INVITATION FOR BIDS FOR CONSTRUCTION AWARDS. 4. EXCEPTIONS TO THE ABOVE TARGET DATES MAY BE MADE ON A CASE-BY-CASE BASIS. 5. SUBMITTED AS REQUIRED TO ALLOW ADEQUATE TIME FOR COMPLETION BY DESIRED DATE (SEE FIGURE 7-12).				

Figure 7-11. Target Dates for Installation Submission of Engineering Support Requests.